EFFECTS OF THE AMERICA INVENTS ACT AND RECENT SUPREME COURT DECISIONS ON PATENT LAW

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DEDICATIONS

To my parents, Jim and Kelly Roal, for believing in me even when I didn't believe in myself. To M.K. Smith for washing my towels, telling me not to wear that ugly shade of lipstick, and being my second mother. To April Carr, my Phi Mu sister and El Agave companion—thank you for introducing me to queso and rescuing me from boring dates. To my electrical engineering friends for helping me survive this major, making sure I made it to class, and telling me that it's in the syllabus.

ABSTRACT

BRIDGETT LEANNE ROAL: Effects of the America Invents Act and Recent Supreme Court Decisions on Patent Law

(Under the direction of Dr. Matthew Morrison)

Due to an interest in pursuing a career in patent law with an electrical engineering background, this thesis describes the 2012 America Invents Act (AIA), which made major changes to patent law in the United States including the switch from "first-to-invent" to "first-to-file" and the creation of the Patent Trial and Appeals Board (PTAB), as well as several relevant key Supreme Court decisions, and explains the impact that these events have caused. Through interviews with attorneys and others in the patent law community, personal research and investigation, and data from the United States Patent and Trademark Office (USPTO), it has been determined from the research presented that the way that attorneys and companies proceed with patent prosecution and litigation has changed and the value of a patent has lessened some, but contrary to popular belief these events have not drastically hurt the amount of patent applications that get granted every year, nor have they hurt or helped small time inventors.

TABLE OF CONTENTS

INTRODUCTION

The Leahy-Smith America Invents Act (AIA) is a federal statute which became effective in 2012, with the primary objective to make U.S. patent law more efficient and harmonize with patent law throughout the rest of the world. Several changes were encapsulated in this act, but the most prominent were the changes to settling Intellectual Property disputes from "first-to-invent" to "first-to-file", and the updates to the Patent Trial and Appeal Board (PTAB). Prior to the statute's initial enactment on September 16th, 2011, the U.S. Patent and Trademark Office (USPTO) granted patents to the inventors with proof (usually lab notebooks and other proof of dates) that showed they were "first to invent," regardless of when the patent application was filed. After the AIA went into effect, patents were granted to the inventor who was the "first to file." The patent community was concerned that the filing process might become cost-prohibitive for small time inventors due to the fee to file and unsure of how the change would play out, so patent lawyers began to file as much as they could before the law went into effect. The less-anticipated but highly important part of the AIA that seemed to have a greater impact on the patent law community was the introduction of the PTAB. The PTAB holds trials (of which there are several types that will be discussed) in which patents may be challenged. Along with both changes, several cases in patent law have set new precedents which are also significant factors in how patent law has changed over the past ten years. Or has it? In this thesis, I present my interviews with a diverse range of experts in the

community, from legal firms and university tech transfer offices, conducted my own research, and use information I have learned working in field of patent law as well. These individuals include Ms. Nicole Reifman, Mr. George "Trey" Lyons III, Mr. Gavin O'Keefe, Ms. Penny Slicer, Mr. Steven Medina, and Ms. Allyson Best, and their interviews are quoted in chapters III, IV, and V. In this thesis, I investigate the impact that the AIA and other relevant recent events have - or haven't had - on patent law.

CHAPTER I: PATENT LAW TERMINOLOGY AND INTRODUCTION TO AIA

Patents fall under the umbrella of intellectual property, which refers to the government-granted rights to an art, logo, or invention. Copyrights protect art, literature, and music and trademarks protect branding and logos. Patents protect inventions and discoveries, including products, machines, processes, methods of manufacture, compositions of matter, and software. When an inventor is granted a patent, they have the "right to exclude others from making, using, offering for sale, selling or importing the invention" but that is not to be confused with "the right to make, use, offer for sale, sell or import." [1]

There are three types of patents: utility, design, and plant patents. Utility patents are based on the unique function of an invention, whether it be a process, machine, product, or composition of matter. Design patents are granted for the unique design of a product, and plant patents are granted to those who discover or invent a new plant. Utility patents tend to be the most common.

The first step in the patent process is to write a research disclosure, which is often considered by a legal office or department and then outsourced to a patent firm to get a patent application ready to be submitted to the United States Patent and Trademark Office (USPTO). The entire process of getting a patent can take years, mostly because it often takes at

least two years for a patent to get examined and for “office actions,” or feedback and decisions, to be made

on the patent. Many inventors are associated with a company or university, both of which have their own in-house procedures for patent applications. In order to be patented, an invention must be, at the very least, novel, “non-obvious,” and “useful.” Novelty simply refers to the uniqueness of the invention. “Non-obvious” means that the solution would not be obvious to someone skilled in the art. For example, a chair is an obvious solution for a seat, so that would not be a “new” invention. Obviousness is one of the most debated requirements for a patent, since what is considered “obvious” leaves much room for interpretation. This is often a requirement that makes software difficult to patent. “Useful” means that the invention must carry out the function it is intended for. [1] In the best interest of a company or university, it needs to be financially viable, valuable, and relevant and useful to the organization’s goals. In the case of a company, intention for production and competitive advantage may also be considered.

There are a few different types of patent applications. A non-provisional (or “regular”) patent application would be for a standard U.S. patent, which includes a written document containing the description and “claims,” or what the invention is claiming to uniquely accomplish, as well as any necessary drawings, an oath or declaration (includes signature) and filing, search, and examination fees.[1] The baby step to a patent is a provisional application. A provisional patent application is like a placeholder, since it still allows the patent to retain the filing date of the provisional. However, a provisional application is not enough to get a patent. A complete non-provisional patent application will be needed for a patent one year after the filing date. If

an inventor is still working on an invention or short on time and money, the quicker and cheaper provisional is perfect, and if they choose not to patent their invention, they also save money. Provisional applications are much simpler and do not require the oath or declaration that the non-provisional application does. Attorneys will often provide advice to clients on whether a provisional application is the more ideal option or going directly to the non-provisional will be better. If it is desired to file internationally, often a PCT (Patent Cooperation Treaty) is filed that allows inventors a one-year grace period to choose which countries they would like to file the patent in. PCTs are often used if it is known that the invention will be used or made in certain countries or depending on where the competition is.

The time at which public disclosure is made is very important as well. As soon as public disclosure is made, rights to the invention are lost in all countries except for the United States, Australia, and Canada. In those countries, a grace period is given post public disclosure to allow inventors to still file patent applications. For the United States, that grace period is one year. However, it can take up to six months to file, so it's best to file as soon as possible after disclosure.

The America Invents Act (AIA) of 2012 made big changes to the way patent law was approached and the efficiency of patents being granted by the USPTO. One major change that caused a frenzy for filing at the time was the change from "first to invent" to "first to file." Under the previous law, the inventor who could prove that they were the first person to conceive the idea and reduce it to practice was granted rights to the patent. All patents filed on or after March 16, 2013 in the United States are under the "first to file" system. [2] This means that the inventor who was first to file a provisional or non-

provisional patent application first is the one with rights to the patent. Another major change was the introduction of the Patent Trial and Appeal Board (PTAB). According to the USPTO, the PTAB "conducts trials, including inter partes, post-grant, and covered business method patent reviews and derivation proceedings; hears appeals from adverse examiner decisions in patent applications and reexamination proceedings; and renders decisions in interferences." [3] Some common PTAB trials include the inter partes review and the post grant review trials, although there are many others. Inter partes review trials are for questioning a patent solely based on either its novelty or obviousness, whereas post grant reviews may be made on any grounds that question a patent's validity, but post grant reviews petitions must be filed within nine months after the patent has been issued. [4].

CHAPTER II: BACKGROUND OF PATENT LAW

Patents are based on inventions, and the amount of inventions being produced changes depending the supply and demand of a nation. There is a strong correlation between how much attention is paid to patents and the situation of a nation's economic and political welfare. The first "patent" law was enacted in Venice in 1474, likely due to a long war between Venice and the Turkish that forced Venice to focus on manufacture rather than trade. [5]

Much of the United States legal system today stems from English Common Law, which is a set of precedents from previous judicial cases. As a young country, the United States relied many English customs to get started, including ideas about intellectual property law. Again, during the buildup of a war, in this case the English Civil War, Parliament decided to pass the Statute of Monopolies in 1624, which limited the English Crown on how their monopolies (versions of patents) could be granted. [5] One important idea that the American Constitution, which was written during the Industrial Revolution, took from the British was the approach of placing emphasis on the advantage to the nation's society, unlike the French version which was focused more on the rights in the invention than societal benefit. [5] This fact is more relevant to copyrights than patents, but still key in differentiating how the United States approaches intellectual property.

Aside from war, the economy is a significant driver of changes in American patent law. During the depression in the late 1800's, the fear of large corporations and their effects on the economy led to the Sherman Antitrust Act of 1890, which limited monopolies. [5] As the economy has fluctuated since, the number of patents that the government was willing to grant has often been dependent on the concern for money. Distrust of monopolies and hard economic times, such as the Great Depression and the 70's, coincided with patent reform and fewer patents granted, and in times such as the 80's during the Reagan administration, patents were easier to come by and looked at more favorably.

Until the America Invents Act in 2012, United States patent law had not seen major overall patent reform since 1952. 2012 was the heart of the recession; the economy was struggling, and therefore patents were under a closer eye once again. The change from first to invent to first to file meant that inventors would have to be much more careful to file in time, and the PTAB meant that it was easier to challenge patents. But what were the effects of this reform, truly? This is the question that shall be further investigated in this thesis.

CHAPTER III: AIA EFFECTS – FIRST TO INVENT vs. FIRST TO FILE

The switch from first to invent to first to file caused most of the initial excitement and apprehension when the AIA first was going into effect. For this thesis, I interviewed several experts in the patent community and saw trends among what they all had to say about the switch from first to invent to first to file.

When I asked about the impact the AIA had on their career, most of my interviewees did not notice enormous change in their day-to-day lives. They certainly had some adjustment, but not a huge overall change. In an interview with patent attorney and partner of MBHB Nicole Reifman on April 15th, 2018, she said that a lot of "little things" had changed, but her everyday life is not vastly different since the AIA went into effect. Reifman explained that, "The rejections look a little different, there's different nomenclature used for them, but practically most of those differences have not impacted me aside from me having to make sure I changed my formalities when filing things and responding. So there a lot of changes with that that I didn't really notice that big of an impact."

That being said, Gavin O'Keefe, Reifman's co-worker at MBHB, said in an interview on April 12th, 2018 that there was a "big learning curve" when getting "trained on patent prosecution and patent litigation based on an already very complex set of rules"

and that he thinks, "...for the people who are just getting into the practice now, the transition is far enough away where you don't really deal with the old law too often, and so it's probably a little easier for them. But for the people who really went through the transition mid-career, that's kinda tough." The small word changes and new exam were definitely "annoying" according to Steven Medina, prior patent examiner and current licensing manager at the University of South Florida, but in an interview on February 9th, 2018, when asked how the AIA impacted his career, Medina says that, "In terms of day to day, at least from what I'm doing right now, not a ton really to be honest with you." Similarly working in a tech transfer office, Allyson Best says in an interview on October 15th, 2018, that, "Ultimately first to file… didn't substantially change a lot of our standard operations in the office." This is common to see in law; big changes often cause a lot of discussion and hype and in the end, are not always as earth-shattering as they initially seemed.

However, this is not to say that the switch from first to file to first to invent didn't have an impact. Perhaps not as intense as people consciously saw and thought that it might, but there were some major effects of the switch. Many professionals noticed a higher stress on filing sooner and saw a need to provide different advice to clients. Penny Slicer, partner at Stinson Leonard Street, said in an interview on April 27th, 2018 that, "Obviously (the AIA) changed the law some as to first to file issues so I think it's probably applied a little more pressure to get filing done earlier than maybe there was before but it changed how the law applied... how we counsel clients and how we operate

is a little different." Another MBHB patent attorney, George "Trey" Lyons III, said in an interview on April 15th, 2018 that, "I think it made an impact on how aggressively people file… some our biggest clients file more aggressively and faster on invention disclosures." But was the need to file as quickly as possible there before? Even under the first to invent system, notebooks had to be very meticulously kept in order to prove that an inventor's conception was indeed the first. Medina mentioned that, "People get a little more freaked out about making sure something is filed quickly, but I think that pressure was kind of always there anyway. You could probably prove that you could invent, or you had an invention maybe several months before you actually went ahead and filed something. That's not a spot you really want to be in." Arguably, it was always important to file quickly. But the AIA drew attention to the matter.

There is also a lot of talk about who has the advantage under a first to file system. Some of this stems from who has the most experience filing patents, rather than the system itself, since bigger companies and universities have more money for lawyers to advise them rather than a solo inventor or smaller company with less money or experience with patents. In addition, a solo inventor may not recognize that they have produced something worth patenting. Reifman says that she has noticed that "...big clients are at more of an advantage rather than the solo inventor because they're more savvy about patent law...I think first to file was designed to be more clear to maybe protect (solo inventors) but if they're not savvy about the whole process in the first place, if they don't come to us until they've waited too long, then maybe someone else has already filed on similar technology." Aside from solo inventors, even smaller companies or universities have seen some differences from bigger industries. From a university

perspective, Best explains that, “Between academics and industry, what they are afforded is time and money. But that’s also to me emblematic of the fact that innovation and research spectrum has moved away from industry, because they cannot afford that early high risk...so they’ve filtered that back down to either small companies or universities to take on that risk, find all those fast failures, and then they’ll take it on after.” Larger companies do have monetary advantages, providing them more lawyers and time, but arguably these factors were already there before AIA.

Medina refers to the idea that small time inventors would be hurt as a “romanticized notion, but when you really look at who we’re filing interfering and interferences as a background... when two filings of pretty much the same thing were filed so close to each other, you have to go ahead and call that an interference proceeding. And it’s a quirk, and you file with the patent Board of Appeals, and it’s a big long way for a lawsuit and you go back and forth on who came first and then that’s where all the notebooks come in and dig into how diligent is diligent...These cases cost like billions of dollars… so really the people that were doing these interference proceedings were the companies. And not really the small-town garage guy... That really wasn’t happening.” The solo inventors are not usually involved in these expensive litigation proceedings and are therefore not hurt by them. Later in this thesis, the statistics from the USPTO back up this idea.

Another impact of AIA was in increase that attorneys saw in provisional patent applications. At an IP boutique like the one that Ms. Reifman and Mr. Lyons work at, they have seen an increase not only in the amount of provisionals they file but also how complete the provisionals are. Lyons elaborates, “ I’ve seen a lot of our bigger clients

prepare more developed complete provisional applications now to where to the conversion process, which is where you convert a provisional to a non-provisional, is really just a matter of asking the inventors do you have anything else you want to add and if there's anything new, then we're just going to change the title on it." Another benefit of a provisional is that the more expensive non-provisional patent application doesn't need to be filed for a year. In that time, clients can figure out if an invention is worth patenting or not while they're allowed to disclose the idea to the public. Lyons says that at MBHB often they write a "rushed" provisional in which they, "write out an entire application in a couple of days because (the client is) going to launch this product, maybe some software release, and you have to get that provisional on file before they release it to the public. Then after that they've got a year to figure out if there's any market validation for this idea or if they just want to let it go abandoned." First-to-file has changed the game for provisional filing; it has become an increasingly popular way to begin the patent process.

From a different perspective, different attorneys may advise clients differently depending on the client and what they plan to do with their invention. Ms. Slicer, working at a general practice firm, is "not a big one for provisionals because if the disclosure isn't complete then you really can't rely on it anyway." She says that she will, "...advise clients that a provisional is appropriate if they're going to make a publication tomorrow or if they're still in development and they really don't have it complete so we can't do a complete disclosure anyway but we want to do iterative filing." This makes sense because this aligns with the feedback I received from my other interviewees, since firms like MBHB and universities like the University of Mississippi and University of South Florida are more likely to have these types of clients. Following with that, Ms.

Slicer also says that, “I do know there are other attorneys in our group who do a lot of work for university, and the universities do a lot of provisional filing for both of those reasons: the professors are wanting to publish and so they’ll file on what’s published and two because it’s a work in progress and they want to get on file for whatever they’re going to publish but they also don’t know how far it’s going to go or if it’s going to be commercialized.” The provisional approach to filing makes sense in many cases, but as Ms. Slicer points out, not all.

To summarize these interview trends: First-to-file did not change much in the day-to-day life of a patent attorney or an employee at a tech transfer office at a university, but the initial switch was a big adjustment, especially depending on how long someone had worked in the field. First-to-file motivated many clients to file sooner, and along with that created an increase in provisional patent application filing. Overall, bigger companies and universities will have an advantage over smaller companies or solo inventors due to their ability to “lawyer up” more and have a higher awareness about patent law and why it is important to file early. These impacts will be important in further discussion about this thesis and why patent law is trending the way that it is today.

CHAPTER IV: AIA EFFECTS - CREATION OF THE PTAB

The creation of the Patent Trial and Appeals Board and new ways to invalidate patents were perhaps an even more significant impact on patents than the big switch from first-to-invent to first-to-file. The professionals I interviewed had much to say about this and how it had indeed impacted their day-to-day work, how companies file, and patent validation.

O'Keefe said that the new PTAB, in collaboration with the *Alice* case (that will be further discussed in the next section of this thesis), has made invalidating patents easier and cheaper than ever before and has therefore lowered the value of a patent. He says that, "...the common thought is that patents are a little less valuable than they used to be, because without IPR's it was really expensive to challenge them and it took a really long time and so if you got a patent, it would really cost a lot of money for somebody to invalidate it. Because of the IPR's, it's a bit easier and so in turn, companies maybe are less willing to invest money in patents. Then secondly, because of the Alice decision, it's either more difficult to get the patent in the first place, because you could have that issue come up at the patent office, and if you do get the patent, it's easier to invalidate it." Furthermore, software patents are difficult because by the time a patent is granted for a software invention after the two years or so it takes to get one, the software is already out of date, and so the patent is no longer as valuable.

At her general practice firm, Slicer also says that she noticed a big change with the introduction of the PTAB and has had experience being involved on an IPR, being a part of an oral argument, and winning the case. She says that as far as changes at work go, "The biggest thing is the IPR phenomenon in the sense of the number of IPR's that have been filed and the impact that that has had on validity of patents. It changed the rules quite a bit." She says the positive side of this change is that it has wiped out many "patent trolls," or entities that attempt to manipulate the law in order to give their patent more legal power than it should have by claiming infringement. Slicer says that prior to AIA, "…the patent trolls were really becoming a problem. I was involved in a lot of lawsuits where our clients were getting sued and used lawsuits where there's hundreds of defendments on patent claims… they were spending a lot of money to defend really bogus lawsuits where either the patents were way too broad and should never have been granted or the claims of the patent were taking certain positions as to the scope of the patent claim. So when the AIA came out and the ability to do these IPR's... that really did have a great positive impact on a lot of our clients in that they were not having to spend so much time and resources in defending these lawsuits or paying out settlements." Wiping out these patent trolls keeps reasonable granted patents from being unfairly invalidated and saves clients big money. However, she added that the downside of the AIA was that legitimate inventors and companies were being hurt since the "...claim language is so broad and things are being invalidated and it's hard to get patents through right now." This idea of whether it is really harder to get a patents are granted will be further investigated in Chapter VI: Statistics, but it is true that there are more ways now to invalidate a patent.

From a university perspective, Best is not a big fan of the changes IPR's are bringing. She says that, "For the University of Mississippi we've not had a lot of infringement... In theory and in operation, we've been very much involved in the discussion because it's moved from an operational to more of a tactical argument by one side of the industry and that being software, all of that, versus the life sciences and that I find unfortunate and I don't know where this is actually going to end up." The University of Mississippi owns far more intellectual property concerning life sciences, so as Best says, they are not having the infringement difficulties that software-based companies and universities are, but life science patents still be affected for being viewed as opponents.

On the topic of IPR's, Lyons says that, "It's becoming maybe less of an advantage. In the very beginning, the perception, and I think the statistics back it up pretty well, was that an IPR was kind of a long slow death march for a patent, right? Like if you get an IPR instituted on your patent, and it's not a cheap process, I mean we're talking about somewhere between $100,000-$200,000 to probably run one through an IPR. It was tough as a patent to survive that challenge. A lot of people thought it was going to be the absolute end of litigation. So what's happened since though is that outcomes have balanced further so they're not so heavy handed on invalidity, so it's not as big of an advantage as people once thought it was." While IPR's have "cleaned house" by getting rid of patent trolls, they also are very harmful to legitimate patents.

The PTAB creation and IPR's have been a controversial topic, producing mixed reactions and results. The ease of IPR's have made wiping out the patent trolls easier while simultaneously making it difficult for legitimate patents to survive and have arguably decreased the value of patents.

CHAPTER V: EFFECTS OF SUPREME COURT CASES

There are some famous Supreme Court cases that have set some very important precedents in patent law. These decisions may even have more of an impact on patent law than the AIA did. Part of the reason for this is that these precedents impact software, which has been and continues to be rapidly changing and growing. Software is one of the more difficult inventions to patent, due to some of these court decisions.

One of these cases is *Alice Corporation vs. CLS Bank International*. Alice Corporation had some software patents on their trading platform designed to fix settlement risk. When CLS Bank International declared patent invalidity, Alice claimed infringement, and this went back and forth until the case reached the Supreme Court. [6] What was so important and controversial about this case was that it set a precedent that software patenting anything considered an "abstract idea" was invalid. [7] Alice's software patents pertained to a business method, which was considered too abstract to be validly patented. For this reason, it is often very difficult to get software patents, and after this it was shown that the number of patents rejected based on section 101 (which states a patent must be new and useful) were significantly higher. [7] This case was settled in 2014, not long after the AIA enactment, which aligns with the idea that in troubling times, there are often less patents and more stringent requirements.

O'Keefe says that this new precedent, "really narrowed the set of categories of patentable subject matter," which was previously much broader and allowed many more inventions to be patented. He believes that Alice and IPR's have converged to produce a similar effect, stating that, "(Alice) has come a couple years after IPR's came into play, now you have these two tools to either invalidate patents or to make it more difficult to get patents issued in the first place."

To clarify what kinds of software ARE patentable, it is helpful to understand an earlier case, *Bilski vs. Kappos*. Granted and argued in 2009, this case was decided in June of 2010. In this case, Bernard Bilski et. al. petitioned their patent application on a business strategy which had been turned down by USPTO director David Kappos. [8] Although software wasn't involved in this particular case, it did set a precedent which can help to determine what kinds of software and other questionably "abstract" inventions are patentable. In *Bilski vs. Kappos*, the Supreme Court affirmed the Federal Circuit's decision that this invention failed the "machine or transformation" test, which refers to Supreme Court precedent that an invention is patentable if "1) it is tied to a particular machine or apparatus, or 2) it transforms a particular article into a different state or thing." [9] This idea can be helpful in determining the validity of software-related patents as well.

Additionally, on the topic of PTAB trials, the *Oil States v. Greens Energy Group* case of 2017 was impactful in that it kept IPR's alive. Although the details of the case are not unimportant, what is relevant here is the Supreme Court's decision that the inter partes review process does not violate the Constitution. The reason why IPR's might not be considered constitutional is because there is no jury or Article III forum that are

usually present when taking away property rights, but it was ruled by majority that patents fall under the public rights doctrine and are therefore an exception. [10]

CHAPTER VI: STATISTICS

All of this being said, according to USPTO statistics, it appears that the both rate of incoming patent applications and granted patents (that get accepted) has continued at its slow, steady increase, shown here from 2007-2015 [11]. The USPTO does not yet have statistics for 2016-2018, but a lot of information can be gleaned from 2007-2015 on its own.

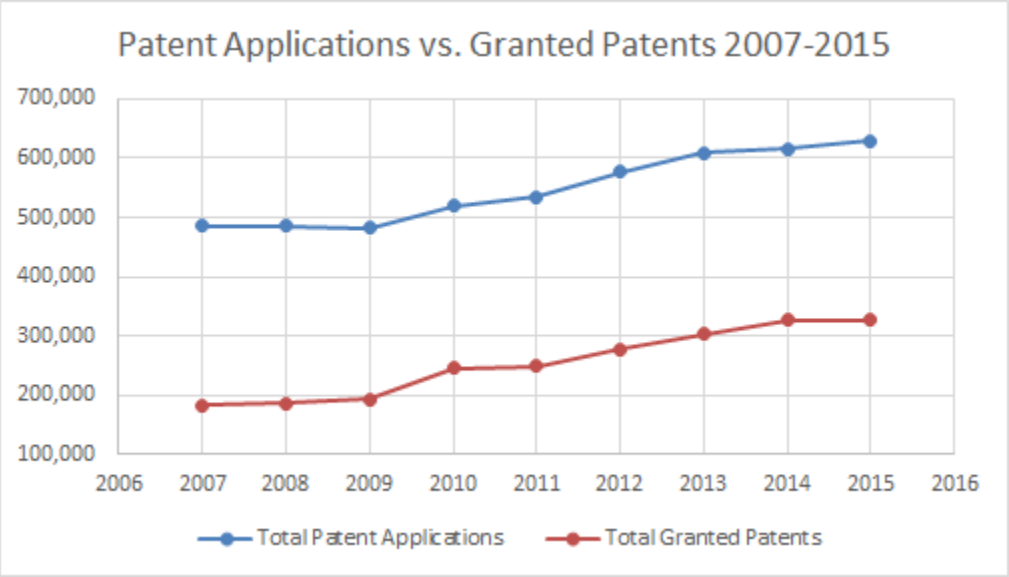

Figure 6-1: Patent Applications vs. Granted Patents 2007-2015

However, looking closer, the percentage of accepted patents has had some big changes in the past few years. Using the same data used to create the graph above, see below the graph showing the percentage of patent applications year by year. Two points

of interest are marked as large red dots, the jump from 2009 to 2010 and decrease from 2014 to 2015.

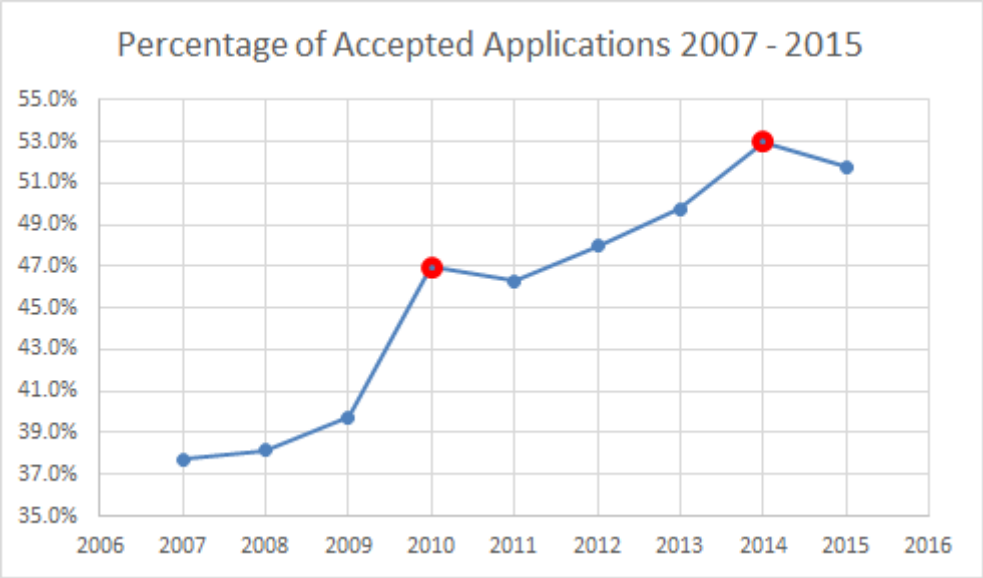

Figure 6-2: Percentage of Accepted Applications 2007-2015

The two red dots were marked to notate drastic change; the first and largest change being in 2009 to 2010, and then the second being in between the large increase from 2013 to 2014 and the drop from 2015. Another important trend to notice is the dip in 2011 and then the rapid steady increase from 2011 to 2014. What does this all mean?

Interestingly enough, these changes appear to coincide with the events discussed in this thesis. After *Bilski vs. Kappos* in 2009, the percentage of accepted patent applications increased from a 39.7% to a whopping 47.0%. Considering most of the changes in the graph are only by 1% or 2%, about a 7% increase is quite large. Did *Bilski v. Kappos* cause this large jump? Initially, it seems as though a court decision to maintain the machine-or-transformation test might lower the percentage of accepted applications, since it might mean less inventions would pass the test. But at the time, there was a large

concern that Bilski would erase method patents altogether. Once this decision came out and method patents were still allowed, people were quick to get those kinds of patents filed.

I theorize that part of the reason impacting how many patents are granted is whether the USPTO has a *clear idea* of why a patent should or shouldn't be validated. Perhaps the impact of whether the USPTO *understands* the newly set precedents of these cases is more significant to how many patent applications get granted. It seems like a strange thing for the USPTO to be unsure of how to interpret law, but in a way the USPTO patent examiners face a similar dilemma to a judge: how are they going to interpret the law and apply it to each patent application? The easier it is for them to decide whether to grant a patent, the easier it may be to get a patent granted.

This theory that the USPTO tends to grant more applications when they have a clearer idea of the law also aligns with the dips in the graph from 2010 to 2011 and 2014 to 2015. Both of those dips correlate to major events, including the AIA being drafted in 2010 and enacted in 2011 and *Alice v. CLS Bank* being decided and setting the "abstract" idea precedent in 2014. Part of the reason for these dips is that both changes, *Alice* and the creation of the PTAB, both invalidate more patents, but part of it may also be partially because the USPTO had to adjust to major changes with both events. Deciding whether an invention is too "abstract" is not a very clear decision, and the initial adjustment from first-to-invent to first-to-file and the introduction of the PTAB was also a major difference for the USPTO. Further proving this point, there is a large and steady increase in accepted applications after this adjustment; which contradicts the idea that AIA caused an overall decrease in accepted patent applications. In fact, after the first year post-AIA,

the amount of accepted applications *increases*. Another reason for this may be simply that there are that many new inventions being produced; technology is advancing so quickly now and is so crucial to our everyday lives, many would say we are handicapped without it now.

Furthermore, the data goes against the idea that AIA hurt small time inventors. In the graph below showing the number of utility patents granted to solo inventors over the years, the amount of utility patent applications that were granted very closely resembles the graph of all accepted applications. [12]

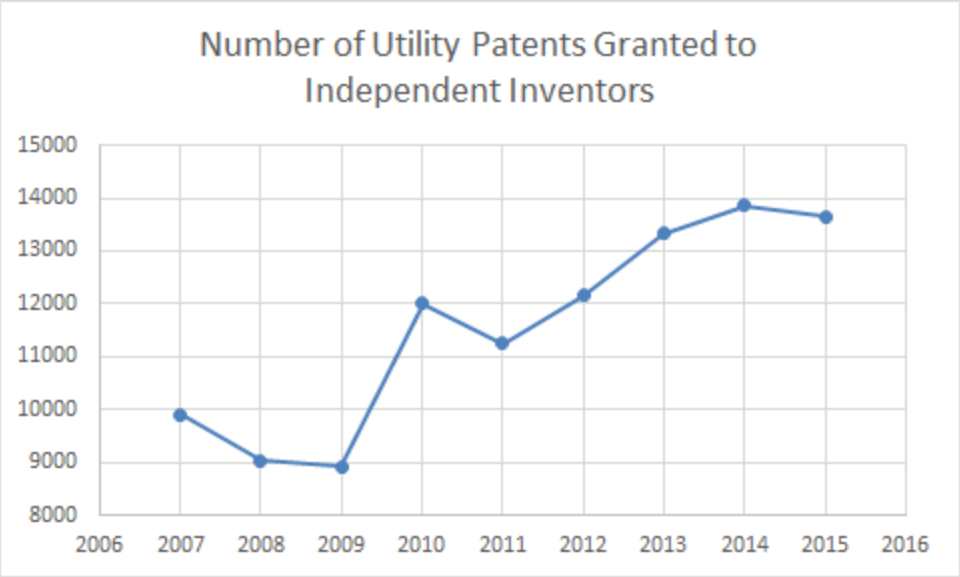

Figure 6-3: Number of Utility Patents Granted to Independent Inventors

CONCLUSION

When I started my journey learning about the AIA, I had very little experience with patents compared to what I know now, after working with and interacting with many patent attorneys not only through this thesis project, but also a part time job and a summer internship. I initially thought, along with the rest of the United States, that the change from first-to-invent to first to file was going to show a much more significant impact. I also didn't realize the complexity of the AIA and what a big difference the PTAB has made on the value and validity of patents. Along with the AIA, Supreme Court decisions such as *Alice v. CLS Bank*, *Bilski v. Kappos*, and *Oil States v. Green Energy* all happening in the past ten years along with AIA have given more fuel to the fire of whittling down on extraneous patents. Finally, the statistics show that even with all the changes going on, the number of granted patents is continuing its uphill climb, even if it does have a few drops or spikes along the way. I theorize that part of the reason for the decreases in the past few years has to do with how well the USPTO is figuring out how to interpret the sometimes confusing or complex changes in law and apply it, but once they do patents continue their original trends. Another simple reason may be that there are simply that many new patent applications coming out every year as technology continues to affect and be an integral part of our everyday lives.

The AIA, in conjunction with recent Supreme Court decisions and ever-advancing technology, has had a major impact on how attorneys and companies approach patent

prosecution and litigation, as well as the value of a patent, but has not drastically hurt the amount of patent applications that get granted every year, nor has it hurt or helped small time inventors.

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